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10/624,128

07/21/2003

Yonglin Huang

15436.103.1

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7590

03/22/2005

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,128

Applicant(s)

HUANG ET AL.

Examiner

Sung H. Pak

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003 and 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1103_0404</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary amendments filed 11/20/2003 and 12/30/2003 have been entered.

Information Disclosure Statement

Information disclosure statements filed 11/04/2003 and 4/13/2004 have been considered by the examiner.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,836,575 B1) in view of Gilliland et al (US 2004/0013368 A1).

Li discloses an optical communications device with all the limitations set forth in the claims, except it does not explicitly teach the use of a module casing and connectors disposed at the input/output ports.

Specifically, Li discloses an optical circulator having a first port through which optical data is transmitted (port for '510' in Fig. 5A); a second port through which optical data is received (port for '530' in Fig. 6A); a third port through which optical data is both transmitted and received (port for '520' in Fig. 5A, 6A); wherein the circulator comprises an optically non-reciprocal core comprising a first optical wedge optically coupled to the first port and the second port ('15' Fig. 5A, 6A); a Faraday rotator optically coupled to the first wedge, said Faraday rotator rotating a polarization of the transmit signal and the receive signal passing therethrough ('16' Fig. 5A, 6A; column 4 line 15); a second optical wedge optically coupled to said Faraday rotator and to said third port ('17' Fig. 5A, 6A); wherein the first port is adapted to accept optical signal transmitted with a well maintained state of polarization (column 6 lines 46-63);

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wherein said third port is adapted to receive optical signal transmitted with any state of polarization (column 6 lines 46-63); wherein said optical circulator directs said transmit signal received at said first port to said third port and directs said receive signal received at said third port to said second port to enable bi-directional communication along a single optical fiber optically coupled to the third port of the circulator (Fig. 5A, 6A).

Even though Li does not explicitly teach the use of module casing and connectors disposed at the transmission ports for connecting to communications panels, such features are known in the art as taught by Gilliland et al (US 2004/0013368 A1). Gilliland discloses a module casing (Fig. 1A) containing fiber optic routing components, having first and second duplex connectors coupled to first and second input and output ports ('14a', '16a' Fig. 1A, Fig. 2- both '14a' and '16a' serve as input AND output ports); a third bi-directional connector for connecting to a communications panel comprising a receptacle adapted to receive a pigtail lead (Fig. 1A) OR comprising a pigtail lead integrally formed with the module (Fig. 1B, paragraph 0029); wherein the first and second connectors are small form factor pluggable (LC connectors- paragraph 0022).

The use of module casing and connectorization of input/output ports are considered advantageous and desirable in the art, because such features provide modular, inexpensive and easy-to-use optical interconnection components that obviates the need for plurality of parallel fiber connections down a single fiber link (paragraph 0004). Further such features provide an interconnection component capable of mechanically supporting itself without additional support in connection arrangements (paragraph 0010).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Li device to have module casing and connectorized input/output ports.

Regarding claims 5, 11, and 19, although Gilliland reference does not explicitly teach that the small form factor connectors are "gigabit interface converters." However, gigabit interface converters utilizing small form factor connectors and pluggables are well known and commonly used in the art. Gigabit interface converters advantageously provide high-speed, high-bandwidth solution to electro-optic signal conversion. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Li and Gilliland device to have gigabit interface converters as claimed in the instant application. It would be desirable to have optical interconnection device capable of high-speed, high-bandwidth communications.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Watson et al (US 6,115,516) and Chu et al (US 6,597,479 B1) disclose optical circulators disposed within optical interconnection modules.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Examiner
Art Unit 2874

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